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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/619,607	07/16/2003	Yasuhide Tani	2018-750	6537

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EXAMINER

BARNEY, SETH E

ART UNIT PAPER NUMBER

3752

DATE MAILED: 08/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/619,607

Applicant(s)

TANI ET AL.

Examiner

Seth Barney

Art Unit

3752

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 20 July 2005.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-37 is/are pending in the application.
- 4a) Of the above claim(s) 4,5,7,12,16,17 and 19-24 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 25-33 and 37 is/are allowed.
- 6) ☒ Claim(s) 1-3,6,8-11,13-15,18,35 and 36 is/are rejected.
- 7) ☒ Claim(s) 34 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 7/20/05.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1-3, 6, 8-11, 13-15, 18, 35 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,783,087 to Aoki et al. in view of U.S. Patent No. 5,921,474 to Zimmermann et al.

Regarding claim 1, Aoki discloses a fuel injector having:

- a valve body (29)
- a downstream end opening. See Figure 2.
- a fuel passage communicated with the downstream end opening
- a valve seat (29a) located adjacent to the downstream end opening

-a valve member (26) located radially inward of the valve body and is seatable against the valve seat of the valve body. See figure 2.

-an injection hole plate (28) that includes a cover wall, which covers the downstream end opening of the valve body, wherein the cover wall includes:

-a thin wall portion through at least one injection hole (28a) is defined,

-a thick wall portion, which is located radially outward of the thin wall portion and has a wall thickness greater than that of the thin wall portion. See Figure 2.

-a nozzle holder (14c) includes a support portion, which supports a downstream end surface of the cover wall of the injection hole plate.

Aoki does not disclose that a portion of the injection hole plate, which is located radially outward of the thick wall portion, is welded to the valve body. Zimmermann discloses a fuel injector having a plate welded (25) to the valve body (16). Zimmermann teaches welding a plate at the point on the plate that is located radially outward of a thick portion through a thin portion. It would have been obvious to one having ordinary skill in the art at the time the invention was made to weld the injection plate to the body or holder as taught by Zimmermann in order to effectively secure the plate.

Regarding claim 2, the modified fuel injector has the injection hole plate clamped between the valve body and the support portion of the nozzle holder. See Figure 2 of Aoki.

Regarding claim 3, the injection hole plate is clamped between the valve body and the nozzle holder. See Figure 2 of Aoki.

Regarding claim 6, the injection hole plate further includes a peripheral wall, which extends from the cover wall in an upstream direction and the peripheral wall is fitted in one of the valve body and the nozzle holder. See Figure 2 of Aoki.

Regarding claim 8, the modified fuel injector would have the welding located radially outward of the injection hole.

Regarding claim 9, the downstream end surface of the valve member is generally flat. See Figure 2 of Aoki.

Regarding claim 10, wherein a downstream end of the valve member and the injection hole plate define a generally flat fuel space therebetween. See Figure 2 of Aoki.

Regarding claim 11, the fuel injector is of the direct injection type.

Regarding claim 13, Aoki discloses a fuel injector having:

- a valve body (29)
- a downstream end opening. See Figure 2.
- a fuel passage communicated with the downstream end opening
- a valve seat (29a) located adjacent to the downstream end opening
- a valve member (26) located radially inward of the valve body and is seatable against the valve seat of the valve body. See figure 2.
- an injection hole plate (28) that includes a cover wall, which covers the downstream end opening of the valve body, wherein the cover wall include a thin wall portion through at least one injection hole (28a) formed in the cover wall.

-a nozzle holder (14c) includes a support portion, which supports a downstream end surface of the cover wall of the injection hole plate.

-the cover wall of the injection hole plate includes a thin wall portion and a thick wall portion, wherein the thin wall portion covers the downstream end opening of the valve body, and the thick wall portion is formed around the thick wall portion. See Figure 2 of Aoki.

Aoki does not disclose that a portion of the injection hole plate, which is located radially outward of the thick wall portion, is welded to the valve body. Zimmermann discloses a fuel injector having a plate welded (25) to the valve body (16). Zimmermann teaches welding a plate at the point on the plate that is located radially outward of a thick portion through a thin portion. It would have been obvious to one having ordinary skill in the art at the time the invention was made to weld the injection plate to the body or holder as taught by Zimmermann in order to effectively secure the plate.

Regarding claim 14, the injection hole plate is clamped between the valve body and the nozzle holder. See Figure 2.

Regarding claim 15, the injection hole plate includes a peripheral wall, which extends from the cover wall in an upstream direction, and the peripheral wall is fitted to one of the valve body and the nozzle holder. See Figure 2.

Regarding claim 18, the modified fuel injector would have the welding located radially outward of the injection hole.

Regarding claim 35, the welding would substantially support the modified fuel injector.

Regarding claim 36, the support portion supports substantially solely an outer peripheral edge of the thick wall portion. See Figure 2.

#### ***Response to Arguments***

4. Applicant's arguments with respect to claims 1-3, 6, 8-11, 13-15, 18, 35, and 36 have been considered but are moot in view of the new ground(s) of rejection.

#### ***Response to Amendment***

5. The examiner notes that the amended claims now recite the limitation "a portion of the injection hole plate, which is located radially outward of the thick wall portion, is welded to one of the valve body and the nozzle holder". This limitation has been interpreted that the welding must be outward of a thick wall portion and therefore cannot be through the thick wall portion itself. By this interpretation the claims can at most be drawn to Figures 7-12B. Therefore, claim 1 and 13 are no longer generic to all species, and all claims depending on claims 1 and 13 that are drawn to Figures 1-6 must be cancelled.

#### ***Allowable Subject Matter***

6. Claims 25-33 and 37 are allowed.

7. Claim 34 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent No. 5,899,390 to Arndt et al. discloses a plate welded radially outward of a thick wall portion. U.S. Patent No. 5,924,634 to Arndt et al. discloses a plate welded radially outward of a thick wall portion.

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Seth Barney whose telephone number is (571)272-4896. The examiner can normally be reached on 7:30am-5:00pm (Mon-Fri).



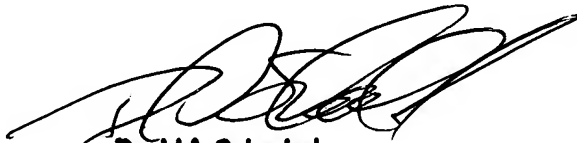
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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dave Scherbel can be reached on (571)272-4919. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Seth Barney  
Examiner  
Art Unit 3752

sb



**David A. Scherbel**  
**Supervisory Patent Examiner**  
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